UO CHEMISTRY NEWS

UNIVERSITY OF OREGON • COLLEGE OF ARTS AND SCIENCES • DEPARTMENT OF CHEMISTRY • 1997

FROM THE DEPARTMENT HEAD



The Department of Chemistry had another fine year last year, and we're off to a great start this year. Since I last wrote, our faculty received several prestigious awards, we had large enrollment increases in our undergraduate courses, and we brought in a record number of grant dollars for research. Further details are found inside these pages.

The faculty is committed to maintaining excellence in the department. That is why we created the Chemistry Achievement Endowment Fund as an additional source of revenue for the department. As described in last year's newsletter, the fund is used for the support and enhancement of teaching and research. I would like to take this opportunity

to thank you for your continuing generous response to the fund. One of the exciting ways the fund is being used is to facilitate the introduction of new "green" chemistry courses. For example, we are developing a new organic lab course that emphasizes an environmentally conscious approach to organic chemistry. Likewise, plans are underway to develop an "environmental" track of general chemistry. The idea behind the new course is to teach general chemistry using lectures and problem sets that have an environmental emphasis. It takes money to develop new courses and refurbish old ones and the endowment fund is helping to make it possible. continued on page 2

NMR Facility Received Million Dollar Upgrade

The magnetic resonance facilities at the University of Oregon have been updated with the addition of two state-of-the-art Varian NMR spectrometers that cost a total of one million dollars. Funding was provided by grants from the National Science Foundation, the National Institutes of Health, and the Markey Foundation. Chemistry Research and Instrumentation Services (CRIS), located in the heart of the organic-inorganic laboratories on the third floor of Klamath Hall, has acquired a new Varian INOVA-300 NMR spectrometer for open-access analytical and research use. This NMR replaces the GE QE-300 that was installed in 1984. The new system, equipped with two broadbandcontinued on page 2



Myungok Yoon works in the third-floor instrumentation facility with Varian INOVA-300 NMR spectrometer.



PAGE 2 Geri Richmond goes to the White House



PAGE 3 Richard M. Noyes Physical Chemistry Achievement Award



PAGE 4 Acheivement Award Winners Harry Noller and Donald McQuarrie



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Finally, let me remind you that we like to hear from you. One of the most widely read parts of the newsletter is the "News From All Over" section, which has news about you. Let us know what you are doing, even if it is just your current position, and we will include the information in our next edition of the newsletter.



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RF channels, can be adapted for use in virtually any two-nucleus experiment. At the same time, it provides convenient walk-up service for quick, routine 1-D spectra.

The other instrument is a new Varian INOVA-600 NMR spectrometer acquired for the study of protein molecular structure and function, and the primary user is the Dahlquist laboratory, Department of Chemistry and Institute of Molecular Biology. It is installed in a new facility on the ground floor of Klamath Hall next to ScienceStores in the former Department of Biology "fly lab". This four-channel system is capable of the most advanced tripleresonance experiments required for elucidating the secondary and tertiary structure of proteins by NMR. This instrumentation is facilitating a number of collaborations between groups in the Department of Chemistry and the Institute of Molecular Biology. Mike Strain is in charge of both the CRIS NMR and molecular biology NMR facility.



Mike Strain in the new facility with Varian INOVA-600 NMR spectrometer.

Geri Richmond Goes to the White House

Geraldine L. Richmond was presented a Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring at the White House on Thursday, September 11, 1997. She was one of nine individuals and ten organizations honored with this award. The award, which carries a \$10,000 grant, is designed to encourage participation in the field by minorities and members of other underrepresented groups. Geri says she is honored to have been given this award, particularly since so many former students played a central role in the nomination process. Pamela Fischer, an engineer at Intel Corp. in Hillsboro, Oregon, and a former Ph.D. student with Richmond, says, "She's a fantastic role model of someone who can do it all-a successful woman scientist, a professor, and a mother. She goes out and actively recruits women into science even in the face of people who say they can't do it." Richmond intends to use the award for local programs designed to get girls in K-12 interested in mathematics and science and to launch a nationwide mentoring program for women interested in pursuing careers in chemistry in higher education. Congratulations and keep up the good work, Geri!

ChemStores Is Now ScienceStores

An extensive review by departments who used ChemStores has resulted in a reorganization and a name change to ScienceStores. Students and faculty members who obtain supplies will still be greeted with a friendly smile from Clarisse Heinhorst, ScienceStores operator. Clarisse, who has been with the University of Oregon since 1978, says there has been little change in dayto-day operations other than the markup has been reduced and standardized. Items in ScienceStores are now sold for a flat 10 percent markup and Clarisse is experimenting with stocking some new items in order to meet the needs of faculty and students.

The administrative structure has also changed. Formerly a part of the Department of Chemistry, ScienceStores is now a distinct unit. Bruce Wilson, laboratory manager for the Institute of Molecular Biology, has taken on the additional duty of stores manager. This change reflects the broader customer base of the stockroom and the changing needs of the departments.



The Richard M. Noyes Physical Chemistry Achievement Award

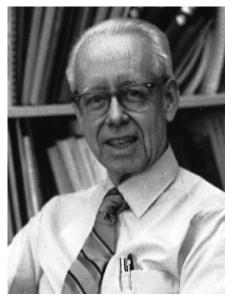
The first recipient of the **Richard M. Noyes Physical Chemistry Achievement Award** was **Mathew Miller**, an undergraduate researcher in the **Diane Hawley** lab. Miller graduated *summa cum laude*, received the Biochemistry Achievement Award, and is Phi Beta Kappa.

The award, previously the Physical Chemistry Achievement Award, was renamed in honor of Professor Richard "Dick" Noves who came to the university in 1959. Noves, who served as department head for four terms, was a major player in the development of the Department of Chemistry until his retirement in 1984. He is an internationally acclaimed chemist, known most widely for his work in chemical kinetics and the Oregonator model of oscillating chemical reactions. His work on oscillating chemical reactions brought worldwide recognition to Eugene and the University of Oregon from scientists in chemistry, physics, biology, and mathematics

who study and build on this work.

Professor Noyes received a Guggenheim Fellowship in 1955, a Fulbright Fellowship in 1964, National Science Foundation Senior Postdoctoral Fellowship in 1965, and an Alexander von Humboldt Senior American Scientist Award in 1978–79. His most notable honors are his election into the National Academy of Sciences in 1977 and election to the American Academy of Arts and Sciences in 1989.

During his career, Professor Noyes has published 190 scientific articles in professional scientific journals and he was associate editor of the *Journal of Physical Chemistry* in 1980–82. On April 6, 1989, marking the occasion of his seventieth birthday, Professor Noyes was honored with a special *Festschrift* edition of the *Journal of Physical Chemistry*, which included articles by many former students and colleagues. Dedication of a full issue of a major international research journal to one



Richard M. Noyes

individual is a rare event—a significant tribute by the scientific community to his contributions, service, and spirit in advancing chemistry teaching and research in Oregon, in the nation, and around the world.

Chemistry Endowment Fund

Three years ago the Department of Chemistry embarked on a fundraising challenge to raise \$60,000 in five years, which would be matched with funds from the State Board of Higher Education. At present we have just passed the \$50,000 mark in gifts received that qualify for the state match. We hope to meet our \$60,000 goal of matched gifts in the fourth year of our campaign. The contributions made by you have been very gratifying. We express our deep appreciation to all of you who have contributed. The names of those who contributed during the past academic year, 1996–97 are listed below.

Abbott Labs (S. and M. Magic) Air Products (R. Pinschmidt) Andrew D. Barofsky George V. Bettoney Curtis E. Borchers **Boise Cascade** (R. M. Vaughn) Michael Bozarth John F. Brown Ernie Bush Catherine Chanin Therese Clauss Lawrence Cohn Stephen Cross

Harold Davidson

Johnny Deblock

CONTRIBUTORS 1996-97

Meagan Hessel

Hewlett Packard

Manuel Debono Christopher de Groot Dow Chemical Co. (G. V. Bettoney) David Draper Tom Dyke Eddie Bauer (S. Hadley) Patrick Ellison Thomas R. Farnham **Richard Feinman** John Fitzgerald **Glen Frerichs** James Garbe Steven Hadley Carol Hahn **Thomas Harris** William Herzog

(C. Houk) Marion Hill James Hofrichter Meyer Horowitz Carol Houk Tricia Igawa Paul W. Jagodzinski David E. Jensen Robert D. Johnson George H. Kennedy Herbert Kopperman Lefford Lowdon Vicky Lyon Lockheed (B. Morosin) Susan Magic Mohammad Malekzadeh Lisa Markov Kent Marshall Mitchel Martin Mark McClure Mark Meier Yoon Merrill David Messenger Chup Yew Mok Russell Molyneux Keith Moring Bruno Morosin Bruce Morrison **Richard Moulton** Ernst Niemi William T. Nolan Joseph M. Owens

David Paxton Robert Pinschmidt Lucius Rivers James Roberts Rohm & Haas (J. M. Owens) Douglas Runckel Maurice Schwarz **Claibourne Smith** Linda Smith Wayne Soloman Wayne M. Stalick Tom Stevens **Timothy Thomas** Mike Uhler Ralph Vaughn Adam Whiting Pancras Wong

Alumni Achievement Award in Chemistry



Harry Noller

Winners of the Alumni Achievement Award in Chemistry are a select group chosen for this honor for professional and personal achievements and service that exemplify the Oregon spirit and traditions of leadership and excellence. Presentation of the Alumni Achievement Award in the College of Arts and Sciences was established in 1989 by Dean Donald R. Van Houten. This year's awards were presented in ceremonies held February 25, 1997.

Harry Noller, Ph.D. '65 with Sidney Bernhard, is Robert L. Sinsheimer Professor of Molecular Biology at the University of California, Santa Cruz (UCSC). After receiving his degree in chemistry from the University of Oregon and postdoctoral research at the MRC, Cambridge, and at the University of Geneva, Noller joined the faculty at UCSC. He has had a remarkable research career, and is widely considered to be the leading expert on

Donald McQuarrie

the ribosome and its structure and function in catalyzing the translation and synthesis of proteins. His approach to this problem has been broad, involving considerations of evolution, biochemistry, and bioorganic mechanisms. Much of our understanding of ribosome structure is based on the models he developed using incisive chemical probing techniques combined with evolutionary and phylogenetic reasoning. His work has been recognized with many honors, including election to the National Academy of Sciences.

Donald McQuarrie, Ph.D. '62 with **Terrill Hill**, is professor emeritus of chemistry at the University of California, Davis. After teaching at Michigan State University and Indiana University, and working in industry, he joined the faculty at Davis in 1978. He remained there until he retired in 1995. His research interests have been in the area of physical chemistry theory, particularly statistical mechanics where he has made significant contributions to the theory of dense fluids, electrolytes, and the theory of the electrical double layer. McQuarrie is the author of three successful textbooks on general chemistry, statistical mechanics, and quantum mechanics, all of which have been widely used, including here at the University of Oregon. He has also written a more specialized monograph on stochastic aspects of chemical kinetics. He received a University of California, Davis award for distinguished teaching. Donald McQuarrie's career has been marked by insight, accomplishment, and the ability to share his insight with students and colleagues.

DO YOU KNOW A CANDIDATE FOR THE ALUMNI ACHIEVEMENT AWARD IN CHEMISTRY?

Send his or her name, address, and a brief explanation of why you feel your nominee deserves this award to Alumni Awards Committee, Department of Chemistry, 1253 University of Oregon, Eugene OR 97403-1253.

Reflections

This is final excerpt from the memoirs of Marion Hill '48, M.S. '49. The first two installments, published in the 1995 and 1996 UO Chemistry News, described the Department of Chemistry in the 1940s and living accommodations of married students. In this excerpt Marion Hill provides a glimpse of his experiences before he came to the University of Oregon in 1946, as one of the many returning veterans of World War II. It serves to remind us of the debt we owe to those who were wounded or killed while serving in the armed forces, and the diversity of our students and their backgrounds. Marion Hill received a UO Chemistry Alumni Achievement Award in 1996 for his outstanding career in chemistry.



Susan Jones and Marion Hill, May 19, 1945.

$\begin{array}{l} Participation \text{ in the} \\ Battle \text{ of } Normandy. \end{array}$

In June 1944, I was a technical sergeant and head noncommissioned officer in S-2, Combat Intelligence, of the 365th Fighter-Bomber Group Headquarters, Ninth Air Force. Our section received and distributed intelligence information to the fighter squadrons, especially as it pertained to air operations.

NEW YEAR'S DAY, 1945— Surprise Attack by the Luftwaffe.

December 31, 1944, was a miserable day of slogging through snow and ice on the ground, but flight operations continued. Generally, December was a month of reversals for the Allied armies and no one felt like celebrating on New Year's Eve. An 8:00 P.M. curfew discouraged any social life in town, and there was little to do but sleep. Most people retired to their bunks for the night.

The weather on New Year's Day was clear and cold and everyone was looking forward to a full day of successful missions. By 0930 two squadrons had taken off for their missions, and a third, was preparing to leave. The Combat Intelligence Section had completed its duties of briefing the squadrons. New Year's Day was the first opportunity on our new base to scrounge for anything we could use in our tents, barracks, or keep as souvenirs. Several group headquarters men and I strolled among the burned-out buildings looking for anything we could use. As we were doing so, I looked up at the ring of hills about 500 feet high that surrounded Metz and our base in the form of a "U". At the same time we heard ack-ack firing in Metz and then saw flashes from the wings of a large number of planes. Everyone yelled, "Messerschmidts!" and dove for any cover that could be found. There were no foxholes because the frozen ground prevented digging. The Luftwaffe attack consisted of sixteen Messerschmidt 109s. One other fellow and I dived for the foundation wall of a burnedout barracks. This barrier protected us in one direction only, but was better than nothing. As we were lying there, the first pass of the Messerschmidts was right overhead; they missed us. Then I looked toward the east end of the field where the planes were flying back and forth parallel to the way we were lying. They worked their way across the field firing all the time until they were overhead. As I looked up, I saw one plane catch fire and begin



Aftermath of Messerschmidts' attack, New Year's Day, 1945.

to fall. It crashed a hundred yards away. The planes were hellishly close, and we could hear the swishswish of their shells. As I turned my head to remark about it to the man lying in front of me, I heard a whoosh! A shell had ricocheted and hit me in the face. I was not aware of being hit. I looked down and saw that my gloves and lower arms were covered with blood. The fellow in front turned around and said, "You're hit in the face—blood is gushing out all over!" For the first time in my life, I thought I was go-

time in my life, I thought I was going to die. A medic came over the foundation wall and after slapping on a gauze bandage, he and others placed me on a stretcher and carted me to the evacuation hospital in Metz. The airfield was still under fire from the strafing aircraft.

RECOVERY.

In the field hospital, x-rays showed that half of an exploding bullet was lodged near my windpipe, with small foreign objects, possibly concrete, elsewhere. None of the major arteries in my throat was damaged by the shell that shattered my left jaw and knocked out two molars. The doctor, a plastic surgeon in civilian life, who removed the bullet from my throat told me that he would sew me up correctly so that I should not have too many problems from the wound. (He was right; the scar is hardly noticeable today.) I still have the bullet that he removed.

FACULTY NEWS

Michael Kellman, outgoing president of the Telluride Summer Research Center, has achieved another successful series of workshops at the Telluride Academy in Telluride, Colorado, this year. The workshops, which bring together scientists from around the world, cover areas of science ranging from biology to engineering. Carlos Bustamante's research group, in collaboration with researchers at the University of California, Santa Barbara, have discovered a way to track the workings of DNA. They have been able to show for the first time that it is possible to record moving pictures of cellular machinery transcribing genes along strands of DNA using a scanning force microscope. Ken Doxsee has returned to campus after spending a year at the National Science Foundation as a program officer in organic and macromolecular chemistry. Seth Rasmussen has been hired as an organic chemistry Instructor beginning fall term 1997. He received his Ph.D. from Clemson University in South Carolina with John D. Petersen, and has been working as a research associate for James E. Hutchison. He replaces T. K. Vinod who left the University of Oregon to assume the position of assistant professor at Western Illinois University in Macomb. In an E-mail message, Vinod wrote that he and his family have settled into their new home. He is also very pleased with his new position. His E-mail address is <TK Vinod@wiu.edu>.

Congratulations to **David** Johnson who was promoted to professor this year. Jim Hutchison and Mark Lonergan received National Science Foundation CAREER Awards during the year. Geraldine L. Richmond was presented a Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring at the White House on Thursday, September 11, 1997. The award, which carries a \$10,000 grant, is designed to encourage participation in the field by minorities and members of other underrepresented groups. (see

separate story).

VISITING FACULTY

The Department of Chemistry has had a record number of faculty visitors this year. **Douglas** Chapman, associate professor of chemistry at Southern Oregon State College, taught the general chemistry laboratories during summer session. Soek Burm Choe, professor of chemistry at Keimyung University in Taegu, Korea, is conducting research in collaboration with David Tyler. Richard Feinman, Ph.D. '65 with Sidney Bernhard, is visiting from State University of New York Health Sciences Center at Brooklyn. Feinman, now professor of biochemistry, is writing a textbook for medical students. He will teach Introduction to Organic Chemistry (CH 332) during winter term. Kenichi Izawa, a visiting scholar from Fuji-Sylesia who worked with Jim Hutchison from 1995-97, has returned to Japan. Hitoshi Naruse, a visiting scholar, also from Fuji-Sylesia in Japan has arrived to do collaborative research with Mike Haley. Mordecai Rubin, who has been a visiting professor several times during the past years with Richard Noves, visited the chemistry department this summer and conducted research in collaboration with David Tyler. Rubin is from the Israel Institute of Technology in Haifa, Israel. Yang-Heon Song, a professor in the Department of Chemistry at Mokwon University in Taejon, Korea, is conducting research with LeRoy Klemm. Lars **Svanevik**, who recently retired from Oregon Institute of Technology, taught summer session general chemistry courses for the fifteenth year. Gregory Baxley, who recently received his Ph.D. with David Tyler, taught a course in water chemistry for summer session. As soon as his teaching assignment was finished, Greg began work at Organic Consultants here in Eugene. Organic

Consultants is a research organization owned by Lloyd Dolby.

RETIRED FACULTY

The July 1997 issue of *Senior News* featured an article by George Beres on **Raymond Wolfe**, chemistry professor emeritus, age seventyseven, and his new career in the communication field. After becoming a regular at the station, Ray has earned his own slot on Channel 11, a local Public Access TV channel. Each Friday evening at 9:00 P.M., his weekly show, *In the Public Interest*, is aired.

The show features segments of community life for people to express their views. Mayor Jim Torrey and former City Councilman, Kevin Hornbuckle, two long-time protagonists in city government, have been his guests. Other segments will feature botanist Mary O'Brien and environmentalist Ethan Newman.

Wolfe and his wife. Barbara. were among the volunteers who used the public media to help save EWEB (Eugene Water and Electric Board) from operating under nuclear power in the early 1970s. In the Beres article, Wolfe says that he has "always believed dialogue to be basic to democracy, and one of the great merits of Public Access TV in Eugene is that it expands on open dialogue." Warner Peticolas will be awarded an honorary doctoral degree from the University of Lille in France on Friday, December 5, 1997. In keeping with French custom, the award ceremony will be carried out in Latin. The award is made because of Warner's contribution to French science and the French scientific community during his several stays at research laboratories in France. These began with his first sabbatical in Grenoble at the Institute Laue Langevan, 1974-75. His second visit, 1980-81, was as a visiting professor at the University of Paris IV (Pierre et Marie Curie). Subsequently he has spent time in Lille and Rheims, and at the University of Paris XIII collaborating on research and giving lectures. **Richard M. Noyes**, who suffered a stroke in 1996 continues to reside at

the Good Samaritan Center, 3500 Hilyard Street, Eugene OR 97405. His health is deteriorating. **LeRoy** Klemm and wife, Christine, toured Ireland and England for three weeks and former iron curtain countries (Poland, Slovakia, Hungary, Czech Republic and East Germany) for two additional weeks. He is completing a three-year period as chairman of the Oregon Chapter of ACS. Robert M. Mazo recently gave the opening remarks at a Statistical Physics Conference in Poland. Mazo also presented a paper on his research and gave the closing remarks at the conference. He and wife, Joan, have also spent time touring France and visiting their grandchildren in Philadelphia.

STAFF NEWS

Marcella "Marcie" Wood, who has been an important part of the chemistry department since her arrival October 8, 1981, was honored on June 27 with a farewell open house hosted by the third floor faculty. Marcie provided essential administrative support services to organic-inorganic floor faculty, staff and students. Her ability to meet tight deadlines made the difference between getting funded and not getting funded for many proposals. With the advent of the personal computer, Marcie enthusiastically learned about new hardware and software and became an authoritative resource for others in the department who needed help with the new technology. These professional and technical attributes, along with her unparalleled interpersonal skills, made her the best office specialist for which any group of irascible chemists could ever hope. Marcie and her cheerful demeanor will surely be missed. Kristi Mikkelsen, has come to the chemistry department from the Materials Science Institute, where she has worked in a part-time capacity since November 1996. She will fill the position vacated by Marcie Wood. Kristi has a degree in journalism from the University of Oregon and will help with the chemistry department web page. Those who have worked with Kristi

describe her as "a high-energy, people person." Brian Fuller, accounting assistant, has left the Department of Chemistry. He and his wife, Tami, who is a recent graduate of the University of Oregon architecture department, have both accepted jobs in the Portland area. They are expecting their first daughter in October. J. D. Stiehl has been hired to replace Brian Fuller. J. D. previously worked in the teaching labs with Lynn Woolfe as a science laboratory preparator. Welcome to the department, J. D. Gary Nolan, chemistry stores manager, has left the University of Oregon and has accepted a position as chemist at a manufacturer of herbal extracts located in Eugene, Oregon. Marilyn Howard, graduate secretary for the department, will retire

in February 1998, after ten years in the department, nineteen years at the university, and a total of twentynine years working for the state. Marilyn is usually a student's first contact with our department when inquiring about graduate school. To her credit, she has become "mom" to many students who are far from home, helping them find housing, roommates, and anything else they might need. Her caring spirit and giving nature has made her a wonderful ambassador for the department. Other notable accomplishments include her role as coordinating editor of this newsletter and editing and publishing the graduate brochure. We wish her well in her future travels and adventures!

Septemberfest '97

The thirty-seventh annual Chemistry Picnic was held on Thursday, September 18, 1997, at Armitage Park. What makes this annual picnic special? Tradition, participation, and fun! One cherished tradition is the do-it-yourself barbecue. Lynn **Woolfe** sees to it that the 100 pounds of prime roast beef is ordered and delivered the day before the barbecue. It is prepared like no where else on campus. Lynn shows a group of graduate students a video tape of the "roasting of the beef" from an earlier picnic. Then, down in the teaching lab, the seven students, a mix of graduating and entering



Clarisse Heinhorst and Lynn Woolfe celebrate solidarity as the picnic gets underway.



The Three Musketeers serve barbecued beef. From left to right: Eric Sheagley, Ian Griswold, and Andy Carmel, second-year chemistry students are part of Lynn Woolfe's barbecue team.

students, keep the tradition alive. They spear the beef on a stainless steel shaft and tie it up with string. Early the next morning the students haul the beef and about 100 pounds of charcoal to Armitage Park, on the bank of the McKenzie River. There they set up David Senkovich's custom-built rotisserie, start the fire, and tend the roast all day. Amidst genuine excitement the students get to know each other, and the torch is passed from one generation to the next.

Preparation for Septemberfest begins weeks before the event.



Cathy Page, Carolyn Bahrman, Julie Haack, and Diane Hawley wait in line to sample the refreshments.

Clarisse Heinhorst circulates a list of things that need to be done (e.g., cooking the corn, bringing potluck items, cleaning up). What makes the event special is the broad participation of the faculty, staff and graduate students. The community comes together and has a great party. On the day of the picnic, people start arriving in the afternoon to play volleyball, horse shoes, or other games. Children and dogs are welcome. Some of us can remember the years that the faculty and graduate students played football, with **Tom** Koenig, former All-American, leading the faculty to an occasional victory. By 4:00 P.M. most people have arrived and many gather around the beer kegs. Then everyone goes through the food line and sits down at the long tables for the meal, followed by frequent visits to the dessert table.



Warner Peticolas (left), Charlotte and John Schellman, and David Herrick (in back) enjoying Septemberfest '97.



Ralph Barnhard, as master of ceremonies, gives away prizes won in the drawing. This prize is a Dairy Queen treat won by John Schellman.

A highlight is the final event, a drawing for prizes with **Ralph Barnhard** as the emcee. Ralph warms up by announcing the names of people who contributed time and food for the event, signalling "one clap" for each. Then two drawings

are held, one for kids (every kid is a winner) and one for adults. As part of the tradition, the names of the merchants who contributed prizes are posted at the picnic. However, this year we are listing them below. When you are in Eugene, please patronize these folks.

LIST OF MERCHANTS, GIFTS, AND RECIPIENTS:

\$20 gift certificate from Bubba's Place received by Bob Foster; \$40 gift certificate from The Treehouse Restaurant received by George Hanson; \$25 gift certificate from Rennie's Landing received by Bridgett Barron and Ben Straw; three gifts certificates from Pietro's Pizza presented to Erin Edmunds, Robert Mellon, and Tana Feinman; two tickets to A Midsummer Night's Dream from the Eugene Ballet Company, given to Myung Yoon; eight gift certificates from Dairy Queen received by John Strehl, Trevor Conteras, John Schellman, Jim **Blanchett**, and **Julie Haack**; two tickets to any fall concert in any section won by Pat Engelking; \$10 gift certificate from Napoli Restaurant and Bakery given to **Ryan Henke;** a gift certificate for one large pizza donated by **Mazzi's** Pizza was given to Hayes Griffith; a \$20 gift certificate donated by the UO **Bookstore** was given to **Jesse Keiker**; two \$15 gift certificates were received from Track Town Pizza and were given to Wendy Breyer and Jim Hutchison; Marker Gene Technologies, Inc. donated three \$25 gift certificates— Mazzi's Pizza went to Leland Mason, Mekala's to Mark Watry, and Macheesmo Mouse Restaurants to Korin Becraft; Sunday brunch for two (\$31.50) was donated by Valley River Inn and was given to Ben Paxton; ten \$2.50 gift certificates were donated by **Sweet Treats** and were given to the children at the picnic. Thanks to all of the merchants for their generosity.

American Chemical Society Student Affiliates Initiate Community Outreach Program

Last year, the membership of the UO chapter of the Student Affiliates of the American Chemical Society grew to more than thirty undergraduates. In addition to their usual activities (student affiliates T-shirt design contest, guest professor seminar series, and tours of local chemistry-related businesses), the chapter published a quarterly newsletter, The Alchemist and established new community outreach programs at elementary and middle schools. The outreach programs involved performing chemical demonstrations with the goal of the getting students interested in chemistry at a young age. This year the affiliates aim to increase their involvement in the community and plan to sponsor a student affiliate meeting-in-miniature. Poster presentations during the meeting will provide an opportunity for students to share their undergraduate research experiences with each other and the faculty.

Alex Pico Awarded Arts and Sciences Scholarship

Each spring, the College of Arts and Sciences dean's office presents four scholarships to outstanding students to encourage their pursuits in higher education. These scholarships are made possible by the generosity of alumni and friends. **Alexander Pico**, an undergraduate biochemistry major, received one of these esteemed scholarships. Alex would like to earn a Ph.D. and become a university professor. Congratulations, Alex!



Undergraduates Publish in Scientific Journal

A paper showing how to make polyacetylenic molecules using a new method, written by three undergraduate students, was published in the March 26, 1997, issue of the Journal of the American Chemical Society. Mike Bell, Jamieson English, and Charles Johnson coauthored the paper with Mike Haley, assistant professor, and Tim Weakley, research associate. The students worked as undergraduate researchers with Haley investigating the chemistry of carbon-rich molecules. Mike Haley said, "Of the five desired products we wanted to create, four of them were made by the undergraduates."

Undergraduate research gives students an opportunity to be scientists and apply all that they have studied. Mike Bell thought that publishing an article in such a prestigious journal was something that only graduate students were able to do. Bell will be attending Oregon Health Sciences University this fall and Johnson, who will be commissioned a second lieutenant after graduation, hopes to do chemical research for the government after his mandatory four years in the armed services. English is touring England.

Biochemistry Major Approved

This fall University of Oregon students will be able to choose a new major. The university now offers a major in biochemistry through the Department of Chemistry. The degree is designed to prepare undergraduates for a research career in academia, in an industrial setting, or in a profession such as medicine.

Undergraduate Research Projects



BREN SCHILL Research Adviser: Michael Haley Research Project

Our project is directed toward the development of a standard synthetic route to metallabenzenes and their isomers. Metallabenzenes are novel aromatic systems in which an isoelectronic transition metal fragment replaces a methine (CH) unit. The molecule retains its aromatic physical and chemical properties. Only a few examples of metallabenzenes exist, and their valences isomers are unknown.

My contribution to the project is the synthesis of a cis-vinylcyclopropene that may lead to a valence isomer of metallabenzene. Despite the temperamental nature of my problem child (and its capricious intermediates) we found ourselves the proud owners of 3-phenyl-3-(2iodophenyl)cyclopropene.

Interest in the project came about because it involved syntheses, transitional metal chemistry, and questions on the mechanism of formation.

Personal Statement

Participation in undergraduate research strongly affected my decision to pursue graduate studies in chemistry. My initial interest in organic chemistry was primarily due to lecture, rather than lab work. Teaching labs (fall and winter terms) were a relatively stale and stressful experience that inhibited rather than enhanced my interest in chemistry. Experience in a research lab is a world apart.



CAREY MARTINS

Research Adviser: **O. Hayes Griffith Research Project**

My primary focus in the laboratory has been to study the use of fluorescence spectroscopy in determining the kinetics of our enzyme, B. cereus PI-PLC. This has involved both tryptophan and substrate fluorescence. Recently I have moved into site-directed mutagenesis, where we hope to modify the active site of our bacterial PI-PLC to behave closely to that of the mammalian PI-PLC.

Personal Statement

During the biology core, I was really excited by cellular biochemistry. The various proteins and compounds involved in the pathways sparked my interest. I learned about Griffith's lab while taking physical chemistry from him. This motivated me to try to enter a biochemistry lab dealing with proteins. Since Griffith was my instructor, I approached him and it has been a terrific experience.

My research experience has had a great influence in my life. Prior to research I wanted to become a physician. Now I am planning to go to graduate school for a Ph.D. in biochemistry-molecular biology or bioengineering. Another option I am considering is getting a combined M.D.-Ph.D.



REBECCA HAMBLIN

Research Adviser: **Catherine Page Research Project**

I'm working on a thin-film selfassembly hybrid project. The interesting aspect of this project I'm focusing on is, instead of alternating inorganic-organic (1 and 2) layers, I'm attempting an inorganicorganic-inorganic'-organic' (1-2-3-4) scheme.

Personal Statement

I became interested in this project mainly through conversations with my peers already working in Page's lab and enhanced my interest after reading about the project. My future plans include getting a master's degree and using it to help people, either through teaching or research.



JULIE HENDRICKSON

Research Adviser: **David Johnson Research Project**

We are looking at a class of compounds called skutterudites. The particular skutterudites I looked at had an iron-antimony framework along with a rare earth element. These compounds have possible thermoelectric properties, and we are looking into seeing exactly how good those properties are.

Personal Statement

Participation in an undergraduate research project has undoubtedly affected my future plans. It has been a wonderful opportunity for me. I am interested in continuing to learn about materials science and thin films through employment.



FREDRIC ROSQVIST

Research Adviser: **Paul Engelking Research Project**

The objective of the research project was to set up two lasers to be used in the analysis of different chemical systems for the presence of ozone. The lasers involved were the excimer laser and the dye laser. The excimer laser was set up to power the dye laser. The dye laser was set to a characteristic absorption wavelength at which ozone becomes excited when hit with radiative energy.

Personal Statement

I took a course called Instrumental Analysis that was being taught by Engelking. The course involved using different instrumentation to analyze molecules. I really enjoyed the course and Engelking's teaching style, so I asked if he had any research opportunities available. He informed me of the project mentioned above, which seemed like an extension of instrumental analysis to me. I enjoyed working with the lasers and I had interests in the study of ozone.



JON LITTY

Research Adviser: **David Tyler Research Project**

Synthesis of organic dimers containing an inorganic molybdenum backbone. Derivatives of these contained various hydrocarbon chains on the organic component. Photochemistry of Mo-Mo linkage has been evaluated for each dimer.

Personal Statement

I became interested in this project because of my interest in industry's use of inorganic materials for communication. In the future I hope to work for the communications industry as a chemical engineer.



MARY KNAPPEN OLTMAN Research Adviser: James Hutchison

Research Project For my first year and a half, I worked on the synthesis of a crown ether molecule, which was to be the building block of a synthetic ion channel. When the project moved to the back burner, I began working on the synthesis of dopamine analogues, which a lab at Oregon Health Sciences University (OHSU) needs to study the human dopamine transporter.

Personal Statement

I met Jim Hutchison through Organic Analysis (CH 339) and learned about the projects he was working on. The ion channel project appealed to me most, and I began working in the Hutchison lab during the summer after my sophomore year. For the future, I have a job offer to work as a lab technician in the OHSU lab that is studying the dopamine transporters. I've enjoyed working in the lab here and look forward to trying an new lab experience that will be geared more towards biochemistry."



Maya Smythe

Research Adviser: **Alice Barkan Research Project**

My research focuses on maize mutants that are deficient in protein targeting within the chloroplast. I am currently working on cloning a gene that encodes a protein which appears to have a novel targeting mechanism in vitro.

Personal Statement

Our lab has studied and characterized mutants deficient in two protein targeting pathways. A third pathway has been identified by in vitro studies conducted by other labs, but no one in our lab had done any in vivo studies. I was asked if I would like to study this third pathway. I thought this project would be very interesting and that it would broaden our understanding of protein targeting.

In the future I would like to continue to do lab work. I am planning to work in a lab at OHSU for the next year or two before going to graduate school.

NEWS FROM ALL OVER

1940s

Marthe E. Smith, B.A. '48, had a long and distinguished career in medicine. After earning an M.S. in pathology and an M.D. degree in 1951, she held a residency in pathology (1952–56) at the University of Oregon Medical School (now Oregon Health Sciences University). She was director of the Cytology Laboratory at the University of California, San Francisco (1956-58), and assistant clinical professor. Later she was associate pathologist at St. Luke's Hospital Department of Pathology and Nuclear Medicine and director of Transfusion Service, 1957-87. Marthe writes, "Retired, gratefully, in 1987. Now I ski, read novels, raise orchids, travel, and do salt water fishing, and audit math classes at San Francisco State University."

1950s

Gerald G. Ohlsen, B.A. '55, worked as a nuclear physicist at Los Alamos National Lab. In 1980 he entered the real estate development business and then law school at the University of New Mexico in 1992.

H. Andrew Johansen, Ph.D. '56 with Pierre Van Rysselberghe, is retired and lives on a small farm near McMinnville, Oregon.

George H. Kennedy, B.S. '59, received his master's and Ph.D. degrees from Oregon State University, where he worked with the late Wendell Slabaugh. He joined the faculty at Colorado School of Mines immediately after graduation. He retired last year and plans to build a log cabin on his property along the Siletz River near Logsden, Oregon.

1960s

Russell J. Molyneux, postdoctoral fellow 1963–65, with Virgil Boekelheide, is project leader at Natural Toxins Research Western Regional Research Center ARS-USDA, Albany, California.

Wayne M. Stalick '64, is professor of chemistry at George Mason University in Fairfax, Virginia.

Thomas G. Frey '65 with Lloyd Dolby, received his Ph.D. from the University of Idaho in 1970. From there he went directly to Cal Poly in San Luis Obispo, California, where he teaches organic and general chemistry, and glassblowing. He also teaches chemistry of glass in summer workshops.

Peter M. Bayley, postdoctoral fellow 1967 with John Schellman, received the 1997 award of the Parke-Davis Pharmaceutical Division of Warner-Lambert Corporation for the best paper published in *Protein Science*. Peter is with the Division of Physical Biochemistry, National Institute for Medical Research, Mill Hill, London, England.

Gordon W. Gribble, Ph.D. '67 with Lloyd Dolby, is professor of chemistry at Dartmouth College in Vermont where he was awarded the Distinguished Teaching Award for 1997.

Chup Yew Mok, Ph.D. '68 with Richard Noyes, is associate professor of chemistry at the National University of Singapore.

Catherine Schaecher (Katie Smith), B.A. '69, stopped by to visit the UO in February 1997. Katie worked for two summers with Ray Wolfe. She studied biochemistry in graduate school and received her Ph.D. from the University of Arizona in 1976. Katie worked in research and development at Abbott Laboratories in Chicago, then transferred to Allied Instrumentation Laboratory in Boston. After working for a while with Hybritech, Inc., Katie is now director of Clinical Research at Gen-Probe, Inc. in San Diego. Katie's advice to students entering the field of biotechnology is "get as much background as you can in molecular biology and cell biology, anything having to do with medical applications, recombinant DNA technology, and molecular modeling. Also, making contacts and networking are important."

Terrone L. Rosenberry, Ph.D. '69 with Sid Bernhard, reports that his title at Mayo Clinic in Jacksonville, Florida is professor of pharmacology and consultant. He says "the move to Mayo has been a good one for me. I will have some additional institutional resources, and I will begin a third area of research on the aggregation and disaggregation of A-beta amyloid, in addition to my other established areas on acetylcholinesterase and GPI biosynthesis and structure."

1970s

Emmanuel L. Udoye, B.S. '70. After receiving his doctor of pharmacy degree from the University of the Pacific in Stockton, California, in 1974, he worked for Merck Sharp & Dohme in Nigeria from 1979 to 1988. He is director of Emace Pharm. Co. in Nigeria (distributor and importer)

Arthur E. Johnson, Ph.D. '73 with John Menninger and Pete von Hippel, presented the seminar, "Nascent Protein Environment during Co-Translational Translocation and Integration at the ER Membrane," at the University of Oregon on December 3, 1996. Arthur moved from the University of Oklahoma to Texas A&M in 1992 where he holds the Wehner-Welch Chair in Chemistry.

H. Peter Jensen, research associate 1974–75 with John Schellman, visiting professor in 1978, and lab guest in 1976 and 1984, has been the Rektor of the Danish Technical University. Peter and his family love Oregon and visit almost every summer. **Penelope Toothman**, Ph.D. '76 with Peter von Hippel, is an independent scientist in Boulder, Colorado.

Thomas L. Paquette, Ph.D. '77 with Ed Herbert, is a research scientist at Nexstar, Inc. in Boulder, Colorado.

1980s

James Garbe, Ph.D. '82 with Virgil Boekelheide, is still working at 3M in St. Paul, Minnesota. His current research is in new materials for high-energy rechargeable batteries.

Randall Mrnsy, postdoctoral fellow 1982–85 with Hayes Griffith, is now a researcher at Genentech in Palo Alto, California.

James B. Marth, B.S. '83, is at the Howard Hughes Medical Institute at the University of California, San Diego in LaJolla.

Parthasarathy Nambi, Ph.D. '84 with John Schellman, is an instructor at Seattle Community College in Washington.

Julie A. Haack, B.S. '86, recently began work as a staff scientist in the research and development of diagnostic test kits at Emerald Diagnostics here in Eugene.

Klaus D. Plitzko, Ph.D. '86 with Virgil Boekelheide, recently returned to Oregon for a visit before beginning his position as business manager of BASF Corporation in Mt. Olive, New Jersey.

Bao-Lu Chen, Ph.D. '88 with John Schellman, is principle scientist at Chiron Corp. in Emeryville, California.

Karen Larison, M.S. '88 with Charles Kimmel, earned another master's degree at Oregon State University and is now a researcher in the Histology Laboratory in the Institute of Neuroscience at the University of Oregon.

1990s

Mitchell Martin, Ph.D. '90 with Ed Herbert, is principal scientist in bioinformatics and genomics at Hoffmann-La Roche in Nutley, New Jersey.

Hale Nicholson, Ph.D. '90 with Brian Matthews, and Susan Hemming became parents of a baby girl on December 1, 1996.

Brian E. Daikh, B.A. '90, is in the residency training program in internal medicine at Maine Medical Center in Portland. He married **Heidi Wierman**, B.S. '96, who is a resident in the same program.

Chanrithy Him, B.A. '92. After graduation, she worked for the Division of Child Psychiatry at **Oregon Health Sciences University** on a major post traumatic stress distress study on the survivors of the Cambodian Holocaust. She has written an autobiography. When the Owl Cries, and has nearly completed a book. When Broken Glass Floats. A Memoir of the Khmer Rouge Years in Cambodia. She presented a twelveyear follow-up study on the survivors of the Cambodian Holocaust, "Cambodia: Power, Myth and Memory," at an international conference at Monash University in Australia. This research paper was also presented at the eighth annual conference, organized by United Cambodian Students of America, held at California State University in Long Beach in January 1997.

Howard Reese, postdoctoral fellow 1991–94 with John Schellman, is a senior research scientist with Nanogen Corp. in San Diego, California.

Keith Blake Moring, B.S. '93, is a technical service and development chemist at Hydrite Chemical Co. in Milwaukee, Wisconsin.

Kirsten Vance-Higman, M.S. '94 with David Tyler, is a process development chemist with Aerojet in Rancho Cordova, California.

Hong Qian, postdoctoral fellow 1990–93 with John Schellman, is

assistant professor in the Department of Biomathematics at the University of California, Los Angeles.

Timothy Aukett, M.S. '93 with David Tyler, was chosen by the *Alchemist*, a newsletter of the Student Affiliates of the American Chemical Society, as Teaching Assistant of the Winter Term 1997. During that term he was one of the two teaching assistants for the honors general chemistry lab. He is well known for his patience with the students and for his firm but relaxed teaching style. Tim has accepted a position as senior technician at Hewlett-Packard in Corvallis.

Alfred A. Avey Jr., Ph.D. '93 with David Tyler, is a research scientist in organic synthesis with Lloyd Dolby at Organic Consultants, Inc. in Eugene.

Jeffrey Marks, B.A. '94, received a master of science degree in analytical chemistry from the University of Washington in 1997.

Pamela R. Fischer, Ph.D. '95 with Geraldine Richmond, returned to Oregon this year to begin a position at Intel, Inc. in Hillsboro.

Ye Xu, B.S. '95, has joined the Boston Group, LP. He can be reached at One Exchange Plaza, 24th Floor, New York NY 10006.

Tommy Thompson, B.S. '95, a kicker for the San Francisco Forty-Niners, is a chemist for Athena Neurosciences, Inc. during the off-season from February to June. Tommy is part of a group trying to produce a drug to arrest the progress of multiple sclerosis.

Benjamin Geertz, B.S. '95, has been a research assistant at the Oregon Health Sciences University in Portland. Fall term 1997, he entered the M.B.A. program at Portland State University.

Alasdair Turner, B.S. '96, worked in an environmental testing laboratory at NVL Laboratories and is now an analytical chemist for Ecology and Environment, Inc. in Seattle, Washington. **Jennifer Gage**, Ph.D. '97 with Bruce Branchaud, is beginning her as a postdoctoral fellowship at the University of Notre Dame in Indiana.

Lynnette C. Garner, Ph.D. '97 with Ken Doxsee, has accepted a position at the Cancer Research Institute at Arizona State University with George Pettit.

Eric A. Miller, Ph.D. '97 with Geraldine Richmond, is a process engineer for Wacker-Siltronic, a silicon wafer manufacturer in Portland.

Yen-Ju Chen, Ph.D. '97 with Tom H. Stevens, joined Genentech, Inc. in South San Francisco in August.

Dewaine Jackson, Ph.D. '97 with Tom H. Stevens, has accepted a teaching postdoctoral position at Mount Holyoke in South Hadley, Massachusetts.

David Adler, M.S. '97 with Mark Lonergan, has been accepted for graduate study at the Medical College of Virginia.

Gregory Baxley, Ph.D. '97 with David Tyler, has been teaching Environmental, Air and Water Chemistry during summer session here at the University of Oregon. He has accepted a position as an organic chemist at Organic Consultants in Eugene. **Jesse I. Bohrer-Clancy**, M.S. '97 with Catherine Page, worked in the Page lab during the summer and entered the Peace Corp in September. He is teaching high school chemistry in Kenya.

Michael Godsey, M.S. '97 with Carlos Bustamante, will continue his graduate studies at the University of Oregon Health Sciences in the field of crystallography and biochemistry.

Jane F. Hetzer, B.S. '97, has been hired as a quality-control technician at East Earth Herb, Inc., a manufacturer of herbal extracts located in Eugene.

Marc Hornbostel, postdoctoral fellow 1993–96 with David Johnson, has accepted a position as staff scientist at Symyx Technologies in Sunnyvale, California.

Anne Qin Zhu, Ph.D. '97 with Peter von Hippel, has accepted a postdoctoral position with H. Singh at the University of Chicago.

Derek Gragson Receives Prestigious Nottingham Prize

Derek Gragson, Ph.D. '97 with Geraldine Richmond, won the Nottingham Prize at the fifty-seventh annual Physical Electronics Conference sponsored by the Division of Condensed Matter Physics and Division of Atomic, Molecular and Optical Physics of the American Physical Society held at the University of Oregon, June 18-21, 1997. This highly regarded prize is awarded to the best graduate student talk based on a Ph.D. thesis that is presented at the conference. The title of Derek's thesis is "Investigations of the Structure and Ordering of Water Molecules at Air-Water and Oil-Water Interfaces." Gragson has accepted a teaching postdoctoral position with Shenda Baker at Harvey Mudd College in Claremont, California.

In Memoriam

Note added in proof. Richard M. Noyes died on November 25, 1997, after a series of strokes. He was seventy-eight years old. Dick Noyes was a beloved member of the department and avid conservationist. See p. 3 for a description of his professional achievements in chemistry. He learned of the Richard M. Noyes Physical Chemistry Achievement Award before his death.

Charles E. Klopfenstein received his B.A. in 1962 and his Ph.D. in 1966 with Leroy Klemm at the University of Oregon. He began as an assistant professor in the Department of Chemistry at the University of Oregon in 1967 and left the UO in 1991. His research was in organic chemistry, chemical instrumentation and computers in industry. Chuck died on March 12, 1997, at the age of fifty-seven as the result of a stroke.

- Theron Edwin Holland, M.S. '93 with Warner Peticolas, died on April 21, 1997, in Missoula, Montana. He was thirty-two years old. Theron enjoyed the outdoors and owned an environmental services consulting firm at the time of his death.
- Susan Jones Hill, wife of Marion Hill (B.A. '48, M.A. '50) died Sunday, August 10, 1997, at home surrounded by her family. ending her seven year battle against metastasized breast cancer. The "Reflections" articles on student life at the University of Oregon featured in two previous chemistry newsletters were written by Marion, and the 1996 chemistry newsletter highlighted Susan's adjustment to student life. Private interment was held Tuesday, August 12, and a memorial service was held on Friday, August 15, 1997.

1997 Chemistry Graduates

BACHELOR'S DEGREE

Barrett Adams, Paul E. Bennett, Arianne C. Boyer, Katherine Brown (Honors), LaMarr J. Cannon, Dustin D. Carlson, Heather Crafts, Jonathan Crane. Marka Crittendon (ACS). Devin L. Drew, Jamison J. English, Eric Fritz. Rebecca S. Hamblin. Julie Hendrickson, Jane F. Hetzer, Justin Kulongowski, Jeremy M. Lehmann, Jon J. Litty, Carey R. Martens, Mathew G. Miller (Honors), Mary Knappen Oltman (Honors), Gratia A. O'Rouke, Eileen E. Parrack, Melinda Pasquini, Desiree Pepper, Jason C. Pickens, Fredric Rosqvist, Brenden Schill, Maya S. Smythe, Brooke E. Taylor, Michael A. Tresidder, Karolina A. Wilczynska, Heng-I Wu.

MASTER'S DEGREE

David H. Adler, Jesse I. Bohrer-Clancy, Stefan Fischer, Perry E. Francis Jr., Michael H. Godsey, Marcus R. Helfrich, Christopher Johnson, Kimberly Komisarek, Lawrence F. Scatena, John L. Strehl, Brandon M. Walts, Mark R. Watry, Anne Q. Zhu.

PH.D. DEGREE

Gregory T. Baxley, David Tyler; Yen-Ju Chen, Tom Stevens; John C. Conboy, Geri Richmond; Gary W. Daughdrill, Rick Dahlquist; Jennifer L. Gage, Bruce Branchaud; Lynnette C. Garner, Ken Doxsee; D. Dewaine Jackson, Tom Stevens; Megan M. McEvoy, Rick Dahlquist; Eric A. Miller, Geri Richmond; Robynn V. Schillace, Rod Capaldi; Chunlin Tang, Rod Capaldi; Kenneth C. Usher, Jim Remington; Rodger B. Voelker, Alice Barkan; Anne Q. Zhu, Pete von Hippel.

1997 Department of Chemistry Awards Graduating Seniors

General Chemistry Achievement

Heide Smith, Andrea Seig, Walter Weare, Suthida Supantamart

Bill Bowerman Fund Scholarships

Kane Anderson (Named for Senior Instructor Ralph Barnhard) Alex Pico (Named for Professor Catherine Page)

Physical Sciences Scholarship For Women

Andrea Seig

Seniors with Departmental Honors Katherine Brown, Mathew Miller, Mary Oltman

Seniors with University Honors

Mathew Miller, summa cum laude; Marka Crittenden, cum laude; Eileen Parrack, cum laude; Desiree Pepper, cum laude; Jamison English, cum laude

Seniors Elected to Phi Beta Kappa

Marka Crittenden, Mathew Miller

American Chemical Society Certification Marka Crittenden

ACS Analytical Chemistry Award

Brenden Schill, Brooke Taylor

Biochemistry Achievement Award

Mathew Miller (Hawley)

Organic Chemistry Achievement Award

Katherine Brown (Branchaud); Mary Oltman (Hutchison); Jason Pickens (Hutchison)

Richard M. Noyes Physical Chemistry Achievement Award

Mathew Miller (Hawley)

Inorganic Chemistry Achievement Award

Julie Hendrickson (Johnson)

American Institute of Chemists Foundation Marka Crittenden

Marka Crittenden

Chemistry Teaching Assistant Award

Timothy Aukett, Grace Ann Neff, Sean O'Connor, Alexander Pico

Chemistry Graduate Research Award

Greg Baxley (Tyler)

UNIVERSITY OF OREGON



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